Amendments to the Claims:

Please amend claims 16, 19 and 20 and cancel claim 18 as shown in the following listing of claims. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (previously presented) A method for generating complex sinusoids of a desired frequency using an oscillator comprising the steps of:

multiplying a current phasor by a predetermined value (14) once every sampling interval to create a next phasor by the oscillator;

identifying if a zero value condition exists within either real component of the next phasor or imaginary component of the next phasor by the oscillator; and

if the zero value condition exists, substituting a complementary component of the real component or the imaginary component of the next phasor that exhibits the zero value condition with a complex component that has unity amplitude by the oscillator.

2. (previously presented) The method of claim 1 further comprising:

if the zero value condition does not exist, identifying if a condition of equality exists between absolute value of the real component of the next phasor and absolute value of the imaginary component of the next phasor;

if the condition of equality exists, substituting both the real and imaginary components of the next phasor with a complex component that has a square-root of one-half unity amplitude.

3. (previously presented) The method of claim 2 further comprising:

if the condition of equality does not exist, determining an error factor for the real and imaginary components of the next phasor and correcting the real and imaginary components by removing the error factor.

4. (previously presented) The method of claim 2, wherein the identifying if the zero value condition exists within either the real component of the next phasor or the imaginary component of the next phasor comprises examining a plurality of highest order bits of the next phasor for the zero value condition, and wherein the identifying if the condition of equality exists between the real component of the next phasor and the imaginary component of the next phasor comprises examining a plurality of highest order bits of the next phasor for the condition of equality.

5. (previously presented) The method of claim 4, wherein the examining the highest order bits of the next phasor for the zero value condition comprises determining if all the highest bits of the next phasor are either a logical 0 or a logical 1.

6. (previously presented) The method of claim 1, wherein the identifying if the zero value condition exists within either the real component of the next phasor or the imaginary component of the next phasor comprises identifying whether either the real component of the next phasor is zero or whether the imaginary component of the next phasor is zero, wherein the substituting the complementary component of the real component or the imaginary component of the next phasor that exhibits the zero value condition with the complex component that has unity amplitude comprises:

substituting the real component of the next phasor with the complex component that has unity amplitude when the imaginary component of the next phasor is zero; and

substituting the imaginary component of the next phasor with the complex component that has unity amplitude when the real component of the next phasor is zero.

7. (previously presented) The method of claim 3, wherein the error factor, the real and imaginary components of the next phasor and corrected real and imaginary components satisfy:

$$x' = x - \varepsilon \times x,$$

$$y' = y - \varepsilon \times y,$$

where ε represents the error factor, x and y represent the real and imaginary components of the next phasor, respectively, and x' and y' represent the corrected real and imaginary components of the next phasor, respectively.

8. (previously presented) The method of claim 7, wherein the error factor and the real and imaginary components of the next phasor satisfy:

$$\varepsilon = \frac{x^2 + y^2 - 1.0}{2}.$$

9. (canceled)

10. (original) The method of claim 1 further comprising employing a sampling rate that is at least twice the desired frequency.

11. (previously presented) A method for generating complex sinusoids of a desired frequency using an oscillator comprising the steps of:

multiplying a current phasor by a predetermined value (14) once every sampling interval to create a next phasor by the oscillator;

identifying if the next phasor is integer multiple of 45 degrees (16, 20) and substituting at least one component (18, 24) within the next phasor with a complex component that has unity amplitude or a complex component that has a square-root of one-half unity amplitude if the next phasor is determined to be integer multiple of 45 degrees by the oscillator;.

determining an error factor (26) if the next phasor is not identified to be integer multiple of 45 degrees by the oscillator; and

correcting the real and imaginary components by removing the error factor (28) by the oscillator.

12. (previously presented) The method of claim 11, wherein the step of identifying is performed by examining logic values of a plurality of highest order bits of the next phasor to determine if the next phasor is integer multiple of 45 degrees.

13. (previously presented) The method of claim 11, wherein the step of identifying further comprises identifying if a zero value condition exist (16) within either real or imaginary components of the next phasor and substituting a complementary component of the real component or the imaginary component of the next phasor that exhibits the zero value condition with a complex component that has unity amplitude.

14. (previously presented) The method of claim 11, wherein the step of identifying further comprises identifying if a condition of equality exists (20) between absolute values of real and imaginary components of the next phasor and if the condition of equality exists substituting both the real and imaginary components of the next phasor with a complex component that has a square-root of one-half unity amplitude.

15. (previously presented) The method of claim 11, wherein the error factor, the real and imaginary components of the next phasor and corrected real and imaginary components satisfy:

$$x' = x - \varepsilon \times x,$$

$$y' = y - \varepsilon \times y,$$

$$\varepsilon = \frac{x^2 + y^2 - 1.0}{2},$$

where ε represents the error factor, x and y represent the real and imaginary components of the next phasor, respectively, and $x'$and y' represent the corrected real and imaginary components of the next phasor, respectively.

16. (currently amended) A method for efficiently generating complex sinusoids of a desired frequency using an oscillator comprising the steps of:

successively multiplying a current phasor by a predetermined value once every sampling interval to create a plurality of next phasors by the oscillator; and

compensating for cumulative round-off errors (28) occurring within the next phasors by the oscillator<u>, wherein the step of compensating comprises the step of examining logic values of a plurality of the most significant bit of the next phasors for the</u>

cumulative round-off errors, wherein the step of examining comprises the steps of:

detecting a condition of zero value (16) within components of the next phasors; and

substituting complementary components of components of the next phasors for which the condition of zero value is detected with complex components that have unity amplitudes, respectively.

17. (canceled)

18. (canceled)

19. (currently amended) The method of claim ~~18~~ 16, wherein the step of examining further comprises the steps of:

detecting a condition of equal absolute-valued components (20) of the next phasors, wherein the detecting comprises identifying if absolute value of real component of a next phasor is equal to absolute value of imaginary component of the next phasor; and

substituting components of the next phasors that have been detected as having the condition of equal absolute-valued with complex components that have square-root of one-half unity amplitudes, respectively.

20. (currently amended) The method of claim 16 ~~wherein the step of implementing~~ further comprises employing a processor whose sampling rate that is at least twice the desired frequency.